

**REMARKS/ARGUMENTS**

Claim 28 has been amended.

New claim 45 is added.

Thus claims 28-42 and 44-45 are currently pending.

Claim 28 is amended without prejudice by deleting a limitation that was added in Applicants' previous communication dated March 15, 2010, and by detailing the manner in which the depth and the concentration of the fluorophore are calculated.

New claim 45 provides details of the concentration calculation of claim 28 by referring to equation (4), from paragraph [0050].

No new matter is added by way of the present amendment.

**Claim rejections under 35 U.S.C. § 103**

Claims 28 - 44 stand rejected under 35 U.S.C.103(a) as being unpatentable over Perelman et al. (U.S. Patent 6,321,111) in view of Ntziachristos et al. (U.S. Patent 6,615,063) and Luryi et al. (U.S. Publication 2003/0123058).

The Applicants have amended independent claim 28. As amended, claim 28 recites that a depth of the fluorophore is based on a time  $t_{max}$  corresponding to a maximum of a temporal point spread function. The concentration of the fluorophore is based on both the depth and on an intensity of the temporal point spread function . Support for this amendment may be found, *inter alia*, at paragraphs [0022] for the depth and [0049-0050] for the intensity.

Claim 28 as amended recites that the depth of the fluorophore is calculated on the basis of a time  $t_{\max}$  corresponding to a maximum of the temporal point spread function. Perelman uses different means of calculating a depth of a fluorescent object. For example at C7 L8-13 (cited by the Examiner in the Final Office Action), Perelman relies on time-of-flight of earliest arriving photons to determine a depth of a fluorescent object. Various mentions of depth calculation throughout Perelman, for instance C8 L55-56, also relate to arrival times of the photons. The inventors of the present invention have determined that a better approach consists of determining a depth based on a temporal position  $t_{\max}$  of a maximum in a temporal point spread function (paragraph [0022]), having demonstrated that this measurement of  $t_{\max}$  is independent from a fluorophore concentration (paragraph [0023]). Perelman teaches a different approach. Perelman thus does not teach “a depth calculator for calculating the depth of the fluorophore on the basis of a time  $t_{\max}$  corresponding to a maximum of the temporal point spread function”. For at least this reason, claim 28 should be found novel and non-obvious over Perelman.

As acknowledged by the Examiner, Perelman does not teach a device having a concentration calculator. In claim 28 as amended, the concentration of the fluorophore is calculated in part on the basis of its depth. Ntziachristos does not teach or suggest calculating a concentration of a fluorophore on the basis of a depth of the fluorophore. For at least this additional reason, claim 28 should be found novel and non-obvious over the cited references.

Claims 29-42 should be found allowable because they depend on an allowable base.

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Reply to Office Action dated June 15, 2010

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### CONCLUSION

In light of the foregoing amendments and remarks, favourable reconsideration and timely allowance is respectfully requested.

Should the Examiner believe that a phone interview could expedite prosecution of the present application, he is invited to contact the undersigned patent agent.

### AUTHORIZATION

The Commissioner is hereby authorized to charge any fees which may be required for consideration of this Amendment or credit any overpayment to Deposit Account No. ~~50-1145~~, Order No. 703734.000050. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Dated: October 21, 2010

By:

Respectfully submitted,  
DAY PITNEY, L.L.P.



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Keith McWha  
Registration No. 44, 235

Correspondence Address:

DAY PITNEY, L.L.P.  
7 Times Square  
New York, NY 10036-7311  
(212)938-8215 Direct Telephone  
(212)297-5800 Firm Telephone  
(212)916-2940 Facsimile